

Abstract

Reducing the circuit scale by performing rectangular block transfer and ring buffer transfer in a same circuit

The inventive DMA controller includes a register for setting the start address of a ring buffer, a register for setting a current transfer address, a register for setting the number of DMA transfers from the start address to the end address, a register for setting the difference between the end address and the start address, and a counter for counting the number of DMA transfers set to the register for setting the number of DMA transfers from the start address to the end address. In the DMA transfer of a rectangular area, the number of DMA transfers in a contiguous area is set to the register for setting the number of DMA transfers from the start address to the end address and the address increment of a non-contiguous area to the register for setting the difference between the end address and the start address. At the end of counting by the counter 107, the value of the register 103 and the value of the register 105 are summed to provide a next address.